

Claims:

- 5        1. A method for determining a radial modulus of elasticity of paper or a corresponding web-like material that can be reeled or wound on a reel, in which method the connection between the force and deflection of a material arranged in layers is measured, **characterized** in that the measurements of force and deflection necessary for calculating the radial modulus of elasticity are made on a reel (R) of paper or corresponding material outside the reeling or winding position.
- 10      2. The method according to claim 1, **characterized** in that a reel (R) reeled or wound of paper or a corresponding material is loaded with a predetermined force in the direction of the radius of the reel (R), and the deflection of the reel in the direction of the radius of the reel that corresponds to the loading is measured and registered.
- 15      3. The method according to claim 2, **characterized** in that a curve is obtained from the measurement results, which is the deflection of the reel as a function of the nip load.
- 20      4. The method according to claim 3, **characterized** in that the curve obtained from the measurement results is compared to a theoretically calculated curve of the deflection of the reel as a function of the nip load.
- 25      5. The method according to claim 4, **characterized** in that when the theoretically calculated curve of the deflection of the reel as a function of the nip load corresponds to the curve obtained from the measurement results, the radial modulus of elasticity can be estimated.
- 30      6. The method according to any of the preceding claims 2 to 5, **characterized** in that the reel is loaded with a planar surface of a press member (1) moving in the direction of the radius of the reel (R).

7. The method according to any of the preceding claims 2 to 6, **characterized** in that the force is measured by means of a force sensor (5) positioned in a press member (1) loading the reel and being in contact therewith.  
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8. The method according to claim 7, **characterized** in that the force sensor (5) is also utilized to determine the extent of the loaded area in the reel (R).  
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9. The method according to claim 8, **characterized** in that the deflection of the reel (R) in the radial direction is determined on the basis of the extent of the loaded area.  
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10. The method according to any of the preceding claims, **characterized** in that the profile of the radial modulus of elasticity of paper or another corresponding reelable or windable material is determined by performing the force and deflection measurements at different points in the axial direction of the reel (R).